

REMARKS

I. Introduction

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art references.

II. The Rejection of Claims 1-8 Under 35 U.S.C. § 103

Claims 1, 3-5 and 7-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mizutani (US 2003/0180605) in view of Reichert et al. (USP No. 6,217,623) and Takayama et al. (JP 09-035738); and claims 2 and 6 were rejected as being unpatentable over Mizutani, Reichert and Takayama in further view of Komatsu et al. (US 2002/0146626). Applicants respectfully traverse the pending rejections for at least the following reasons.

As a preliminary matter, in the Response to Arguments section, the Examiner mistakenly refers to the April 9, 2008 Response. As the Office Action addresses the October 15, 2008 Response, Applicants respectfully request correction of the record.

With regard to the present invention, independent claims 1 and 5 recite a lithium ion secondary battery and a method of producing the battery, respectfully, includes an electrode group that comprises... a porous film formed on at least one of said positive electrode and said negative electrode, wherein said porous film which comprises a filler and a binder, a positive electrode and a negative electrode which are wound around a winding core, and the positive electrode and/or the negative electrode have/has, on the initial winding side, a region where an active material layer is carried on neither side of a core member and an adjoining region where the active material layer is carried on only one side of the core member.

One feature of the present disclosure as recited by the rejected claims is that the porous film is integrally formed on the electrode, wherein the porous film comprises a filler and a binder.

In contrast, Mizutani teaches a separator which is separate and distinct from the electrode. For example, the separator of Mizutani is composed of polyolefin, which is a different component than that of the electrode. As described in paragraph [0068] and shown in Fig. 7D of Mizutani, the positive electrode laminate 5 is located on one surface of the separator 1 in a first area extending from an approximate center toward one end of the separator; a negative electrode laminate 6 is located on the other surface of the separator 1 in a second area extending from the approximate center toward the other end of the separator; and subsequently, the separator 1, the positive electrode laminate 5 and the negative electrode laminate 6 are spirally wound around a jig 21 by rotating the jig 21 to form the wound electrode 4. Thus, the positive and negative electrodes of Mizutani are rolled up with one large sheet of separator.

In the present disclosure, since the porous film is formed of filler and binder, these cannot be arranged such as in Mizutani, because it would not be possible to roll up the porous film and electrode combination of the present disclosure around a jig such as in Mizutani, without causing cracks in the film, because the winding around the jig is much tighter than the winding core. As such, it is clear that the separator of Mizutani cannot be simply substituted with the porous film of the present disclosure or Reichert.

Furthermore, the Examiner stated that she did not understand the argument in the previous response that a separator that is composed of one large component having an area greater than the total area of positive and negative electrodes is an essential feature of the battery

of Mizutani. The Examiner alleged that the instant claims also require a separator of larger area than the positive and negative electrodes. However, in Mizutani, the electrodes must be rolled up in one sheet of separator. Thus, the one sheet is required to have a projected area larger than the total of the projected area of the positive and negative electrodes. In contrast, in the present disclosure, since the porous film is formed on the electrode, the projected area of the porous film is equal to or less than the total of the projected area of the positive and negative electrodes.

Moreover, in response to Applicants' argument that the positive and negative electrodes of Reichert cannot be disposed on both faces of one porous film, the Examiner stated that "Reichert clearly states that the porous film layer can be sprayed 'directly onto either or both anode or cathode', thereby teaching that the positive and negative electrodes to be disposed on both faces of one porous film."

Applicants respectfully point out that a skilled artisan would not have interpreted Reichert in this manner. Rather, one skilled in the art would interpret this passage as meaning that a porous film is sprayed on either the positive or the negative electrode, or alternatively, on both. However, Reichert does not teach or suggest providing the positive and negative electrodes on both faces of the porous film, or any specific method for providing the positive and negative electrodes on both faces of the porous film. As such, it is clear that Reichert fails to disclose the porous film of the present disclosure.

In addition, the Examiner states that she disagrees with Applicants' argument that the proposed combination of prior art is improper due to the fact that the addition of the winding core would render the device of Mizutani unsuitable for its intended purpose, because the stated goal of Mizutani is to eliminate a component that does not contribute to power generation. The

argument against this is that Mizutani removes the outermost portion of the active material layer to eliminate a non-contributing component. Applicants respectfully disagree. Regardless of how Mizutani eliminates non-contributing components, the addition of a winding core would still not fulfill Mizutani's stated goal of eliminating a component that does not contribute to power generation. As such, the Examiner has still not shown how the proposed combination would not obfuscate the stated goal of Mizutani.

Moreover, the Examiner disagrees with Applicants' argument that the electrode assembly does not require a winding core composed of a wound end of the separator or a winding core material (another component) provided in the approximate center part, because the claims do not recite this feature. Applicants again respectfully disagree. The point of the above argument is that Mizutani does not require a winding core *of any kind*. Thus, regardless of how the winding core is shaped, or where it is located, Mizutani still does **not** disclose a winding core.

As is well known in patent law, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). As the porous film disclosed in Reichert would render the wound battery of Mizutani inoperable for its intended purpose, there is no suggestion or motivation to make the proposed combination of Reichert with Mizutani or Takayama. Accordingly, Applicants respectfully submit that the § 103 rejection of claims 1 and 5 over Reichert, Mizutani and Takayama be withdrawn.

III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1 and 5 are patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.


IV. Conclusion

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication of which is respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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